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(54) Title: IMPROVED MIXED METAL OXIDE CATALYSTS AND PROCESS FOR (AMM) OXIDATION OF LOWER ALKANE HYDROCARBONS

(57) Abstract: Catalytic compositions and processes are disclosed for economical conversions of lower alkane hydrocarbons. Broadly, the present invention discloses solid promoter treated compositions containing mixed metal oxides that exhibit catalytic activity for ammoxidation of lower alkane hydrocarbons to produce an unsaturated nitrile in high yield. Generally, these solid oxide compositions comprise, as component elements, molybdenum (Mo), vanadium (V) niobium (Nb) and at least one active element selected from the group consisting of the elements having the ability to form positive ions. Mixed metal oxide catalytic compositions advantageously are formed process steps comprising impregnation of a base catalyst with an aqueous medium comprising sources of one or more promoter element drying the resulting material; and thereafter subjecting the dried material to heat treatment, under a gaseous atmosphere that is substantially free of dioxygen, at elevated temperatures of at least 400° C. Also described are methods for forming the improved catalysts having the desired crystalline structure and ammoxidation processes for conversion of lower alkanes.